

The opinion in support of the decision being entered today is not binding precedent of the board

Paper 20

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE BOARD OF PATENT APPEALS
AND INTERFERENCES

Ex parte DAVID F. GAVIN, GRAIG WALDRON,
ROBERT J. MARTIN and GEORGE A. POLSON

Appeal 2001-1647
Application 09/120,664¹

MAILED

DEC 17 2001

PAT. & T.M. OFFICE
BOARD OF PATENT APPEALS
AND INTERFERENCES

ORDER PURSUANT TO 37 CFR § 1.14(d)

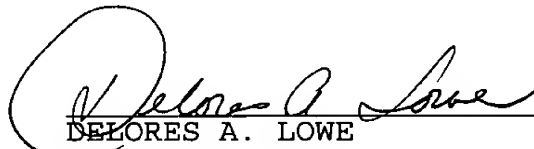
A merits panel entered a decision accompanied by an opinion (Paper 19) on 17 December 2001. The board is of the opinion that the opinion should be published. Accordingly, it is

ORDERED that within **one (1) month** of the date of this order, applicants may file an objection complying with all of the provisions of 37 CFR § 1.14(d).

FURTHER ORDERED that to avoid any possibility of the board overlooking any objection, it is requested that any objection be filed by fax (703-305-0942).

¹ Application for patent filed 22 July 1998. The real party in interest is Arch Chemicals, Inc. (Appeal Brief, page 2).

FURTHER ORDERED that counsel should indicate whether they wish to appear as counsel of record when the opinion is published, and if so, how counsel should be listed.



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Paper 19

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Appeal 2001-1647
Application 09/120,664¹

Before: WILLIAM F. SMITH, Administrative Patent Judge, and
McKELVEY, Senior Administrative Patent Judges, and
NAGUMO, Administrative Patent Judge.

McKELVEY, Senior Administrative Patent Judge.

Decision on appeal under 35 U.S.C. § 134

The appeal is from a decision of a primary examiner rejecting claims 1, 38 and 40-41. We affirm.

A. Findings of fact

The record supports the following findings by at least a preponderance of the evidence.²

¹ Application for patent filed 22 July 1998. The real party in interest is Arch Chemicals, Inc. (Appeal Brief, page 2).

² To the extent these findings of fact discuss legal issues, they may be treated as conclusions of law.

The invention

1. The invention relates to "composite particles" (specification, page 5, lines 2-3).

2. According to the specification, the composite particles contain a shell and a core (specification, page 5, line 4).

3. The core comprises a metal or a metal-containing compound (specification, page 5, lines 4-6), an example being zinc oxide (specification, page 20, Example 20).

4. In the words of the specification (page 5, lines 6-8):

[the] shell *** [comprises] a pyrithione adduct comprising the reaction product of pyrithione with a portion of *** [the] metal or metal-containing compound from *** [the] core.

5. The shell component is said to provide complimentary biocidal activity to the biocidal activity of the core component (specification, page 5, lines 8-10).

6. The composite particles are said to be useful in biocidal compositions (specification, page 5, line 2).

7. The composite particles can be used in an antifouling composition (specification, page 5, line 27), coating compositions (specification, page 6, lines 11-14) and in a shampoo, soap or skin care medicament (specification, page 6, lines 1-2).

The claims

8. Claims 1 and 38 are independent claims. Claim 40 depends from claim 1. Claim 41 depends from claim 38.

9. Independent claim 1 reads:

A biocidal composition comprising composite particles, each of said composite particles containing a shell and a core, said core comprising a metal or a metal-containing compound wherein the metal is a moiety selected from the group consisting of zinc, copper, bismuth, silver, zirconium, and combinations thereof, and said shell comprising a pyrrithione adduct comprising the reaction product of pyrrithione with a portion of said core metal or metal compound.

10. Dependent claim 40 reads:

The composition of claim 1 wherein said shell comprises zinc pyrrithione, and said core comprises zinc or a zinc-containing compound selected from zinc oxide and zinc selenide.

11. Dependent claim 40, re-written in independent form reads (indentation and bracketed matter added):

A biocidal composition comprising composite particles,
[1] each of said composite particles containing a shell and a core,
[2] said core comprising zinc or zinc oxide or zinc selenide and
[3] said shell comprising zinc pyrrithione adduct comprising the reaction product of pyrrithione with a portion of said core zinc oxide or zinc selenide.

12. Independent claim 38 reads:³

A biocidal composition comprising composite particles containing a shell and a core, said core comprising a filler or a biocide and said shell comprising a pyrithione adduct derived from a portion of the core metal.

13. Dependent claim 41 reads:

The composition of claim 38 wherein said shell comprises zinc pyrithione, and said core comprises zinc or a zinc-containing compound selected from zinc oxide and zinc selenide.

14. Dependent claim 41, re-written in independent form reads (indentation and bracketed matter added):

A biocidal composition comprising composite particles containing a shell and a core,

- [1] said core comprising a filler or a biocide comprising zinc or a zinc-containing compound selected from zinc oxide and zinc selenide
- [2] and said shell comprising a pyrithione adduct derived from a portion of the core metal.

The examiner's rejections

15. **Rejection 1:** All claims were rejected under 35 U.S.C. § 102(b) as being anticipated by Bernstein, U.S. Patent 2,809,971 (1957) (Examiner's Answer, pages 4 and 7).

16. **Rejection 2:** All claims were rejected under 35 U.S.C. § 102(e) as being anticipated by Oppong, U.S. Patent 5,776,960 (1998, filed 16 October 1996), when considered in light

³ We note that claim 38 is the broadest claim on appeal.

of Bernstein which is said to have been incorporated by reference into Oppong (Examiner's Answer, pages 4 and 10).

17. **Rejection 3:** All claims were rejected under 35 U.S.C. § 102(e) as being anticipated by Roenigk, U.S. Patent 5,821,271 (1998, filed 7 June 1996) (Examiner's Answer, pages 5 and 13).

18. **Rejection 4:** All claims were rejected under 35 U.S.C. § 102(b) as being anticipated by an "abstract" of "Nagata." Nagata is published Japanese Patent Application 04-311206 (1992) (Examiner's Answer, pages 5 and 15). A translation of the Japanese application has not been provided.

19. **Rejection 5:** All claims were rejected under 35 U.S.C. § 102(b) as being anticipated by an "abstract" of "Fujita" (Examiner's Answer, pages 5 and 17). Fujita is published Japanese Patent Application 05-297198 (1993). A translation of the Fujita Japanese application has not been provided.

20. **Rejection 6:** All claims were rejected under 35 U.S.C. § 102(e) as being "clearly anticipated" by Morris, U.S. Patent 5,916,947 (1999, filed 18 September 1996) (Examiner's Answer, pages 6 and 18).

Morris

21. Because we reverse the rejections based on Bernstein, Oppong and Roenigk, and because we vacate the rejections based on Nagata and Fujita, all for reasons

hereinafter given, we do not find it necessary to discuss the scope and content of these five documents.

22. Applicants represent that Morris describes "a photosensitizer being 'surface coated' onto zinc oxide" (Appeal Brief, page 9).

23. Applicants further represent that "[w]ithin *** [Morris'] wish-list of photosensitizers is zinc pyrithione" (Appeal Brief, page 9).

24. Morris will confirm applicants' representations, although we are not quite sure what applicants mean by "wish-list."

25. Morris describes an antifouling coating composition which comprises zinc oxide which has been surface coated by a photosensitizer (page 1, Abstract).

26. In claim 1, Morris describes a "material" which is said to have antifouling activity comprising zinc oxide and a photosensitizer wherein the "photosensitizer is surface coated onto *** [the] zinc oxide and is selected from the group consisting of *** zinc pyrithione ***."

27. In claim 15, as part of an overall method of preventing unwanted organic growth, Morris claims a process step of surface coating zinc oxide with a photosensitizer.

28. In the descriptive portion of the patent, Morris tells us that the "material" can be made through a "preformulation step *** which involves either subliming or solvent depositing the photosensitizer over the surfaces of the

colloidal zinc oxide prior to suspending the zinc oxide pigment in *** [a] vehicle" (col. 6, lines 10-14). The step is said to help ensure that the photosensitizer contacts the zinc oxide (col. 6, lines 14-15).

29. Morris describes the use of several photosensitizers, including zinc pyrithione (col. 6, lines 54 through col. 7, line 3, particularly col. 6, line 66).

30. In what appears to be an embodiment which may not involve surface coating, Morris describes the use of a mixture of zinc oxide and zinc pyrithione (col. 8, lines 25-32).

The examiner's rationale

31. According to the examiner, Morris describes a biocidal particle composition "that comprises a zinc core (e.g. zinc oxide) and a zinc parathion^[4] 'shell' ***" (Examiner's Answer, pages 6 and 18).

32. Further according to the examiner, the composition described by Morris "would inherently result" in the claimed product (Examiner's Answer, pages 6 and 19). In other words, according to the examiner, the claimed invention is inherently, but not explicitly, described by Morris.

⁴ The examiner refers to zinc parathion. It is apparent from the record that the examiner meant to refer to zinc pyrithione. The two compounds are different. See entries 7167 and 8178 from The Merck Index, CD-ROM, Version 12:1a, ISSN 1359-2947 (12th ed. 1996). Copies of the entries are attached as an Appendix to our opinion. We have construed the examiner's reference to zinc parathion to mean zinc pyrithione.

33. Still further according to the examiner, Morris describes a photosensitizer surface coated onto zinc oxide (Examiner's Answer, page 19).

34. The examiner found that the ingredients of applicants' claimed composites (zinc oxide core and zinc parathion [sic--pyrithione] shell) would appear to be the same.

35. Recognizing that the compositions described and claimed by Morris are "identical or substantially identical," the examiner held that a prima facie case of anticipation existed on the record (Examiner's Answer, page 21), citing In re Best, 562 F.2d 1252, 1255, 195 USPQ 430, 433 (CCPA 1977) ("[w]here, as here, the claimed and prior art products are identical or substantially identical, the PTO can require an applicant to prove that the prior art products do not necessarily or inherently possess the characteristics of his claimed product"); In re Spada, 911 F.2d 705, 15 USPQ2d 1655 (Fed. Cir. 1990) (same).

Applicants' argument

36. Applicants' principal argument seems to be that Morris cannot anticipate the claims because the claims require that the "shell" be a reaction product of pyrithione with zinc from the zinc oxide in the "core" (Appeal Brief, page 9).

37. Applicants, through counsel and without referring to any underlying evidence, argue that the surface coating envisioned by Morris is different since it lacks the structural

integrity of a shell formed by chemically bonding with a portion of the core material (Appeal Brief, page 9).

38. To be sure, there is a discussion in the specification with respect to a photomicrograph shown in Fig. 2 of the drawings (specification, pages 6 and 17).

39. According to that discussion, Fig. 2 is said to show the attachment of small copper pyrithione particles to the surface of larger cuprous oxide particles (page 17, lines 21-22).

40. Apart from the fact that in presenting the appeal applicants do not rely on Fig. 2, we are not sufficiently knowledgeable with respect to the metallurgy involved to tell, without the testimony of an expert or a person having ordinary skill in the art, what is shown in Fig. 2 or what is meant by the word "attachment" (specification, page 17, line 21). In this respect, applicants did not favor us with any Rule 132 declaration testimony of any witness.

41. Even if we assume that the representations in the specification are accurate with respect to copper pyrithione and cuprous oxide, there is no corresponding micrograph of a zinc pyrithione and zinc oxide composite. We are in no position to make findings to the effect that what occurs with copper will also occur with zinc.

B. Discussion

1. Rejections based on Bernstein, Oppong and Roenigk

These rejections are based on anticipation under 35 U.S.C. § 102. To anticipate a claim, a prior art reference must disclose every limitation of the claimed invention, either explicitly or inherently. Atlas Powder Co. v. IRECO Inc., 190 F.3d 1342, 1346, 51 USPQ2d 1943, 1945-46 (Fed. Cir. 1999). The examiner has not remotely made out a case that Bernstein, Oppong or Roenigk describe, explicitly or inherently, a composite having a core and a shell.

Accordingly, these rejections are reversed.

2. Rejections based on Nagata and Fujita

The Board of Patent Appeals and Interferences continues to have recurring problems in resolving ex parte appeals which come before it. One continuing recurring problem is the citation and reliance by examiners on abstracts, without citation and reliance on the underlying scientific document.

In this appeal, the examiner relied upon abstracts of two published Japanese patent applications without referring to translations of the underlying applications. An abstract and the underlying document of which it is a summary are distinct documents. In a rejection, an abstract stands on its own--it does not incorporate by reference any disclosure of the underlying document. Abstracts are often not written by the author of the underlying document, and may be erroneous or misleading--in virtually all cases, they are incomplete. In the

present case, neither the Fujita abstract nor the Nagata abstract expressly describe or teach a zinc oxide core having a zinc pyrithione shell. Nor, on the present record, do they provide enough information to permit an inference that zinc oxide core/zinc pyrithione shell structure is an inherent, i.e., a necessary, result of the disclosure of either reference. The examiner does not explain, either in the statement of rejection or rebuttal, where the required core-shell structure is said to be described, or why it must be formed as a result of the operations described in the references.

Generally an abstract does not provide enough information to permit an objective evaluation of the validity of what it describes. Thus, an abstract is even less reliable a basis to extrapolate the alleged teachings of the underlying document to different circumstances. Abstracts function to alert a reader to disclosures of possible interest. They are little more reliable than headlines or brief newspaper articles.

Citation of an abstract without citation and reliance on the underlying scientific document itself is generally inappropriate where both the abstract and the underlying document are prior art.⁵ It is our opinion that a proper examination under 37 CFR § 1.104 should be based on the underlying documents and

⁵ In the circumstance where only the abstract is prior art, an examiner is nevertheless under a burden to establish that the content of the abstract, along with other prior art relied upon, is legally sufficient to support a rejection.

translations, where needed. Accordingly, the preferred practice is for the examiner to cite and rely on the underlying document.

When an examiner cites and relies only on an abstract, the applicant may wish to obtain a copy of the underlying document and submit a copy to the examiner when responding to a rejection relying on an abstract. In the event a reference is in a foreign language, if the applicant does not wish to expend resources to obtain a translation, the applicant may wish to request the examiner to supply a translation. If a translation is not supplied by the examiner, the applicant may wish to consider seeking supervisory relief by way of a petition (37 CFR § 1.181) to have the examiner directed to obtain and supply a translation.

In the past, when neither the examiner nor the applicant rely on the underlying article, the board has often expended the resources necessary to obtain a copy of the underlying scientific article, as well as translations thereof. When it did so, however, the burden of examining the application fell on the board in the first instance. Moreover, to the extent that the board relies on parts of a translation not previously provided to an applicant, any affirmance generally has to be a new ground of rejection under 37 CFR § 1.196(b)--which can result in further prosecution.

In this case, we do not know whether the examiner or the applicant had or reviewed the underlying foreign language Japanese applications or translations thereof. The board cannot

examine, in the first instance, all applications which come before it in an ex parte appeal under 35 U.S.C. § 134. In this particular appeal, we exercise discretion by declining to obtain a translations of the underlying Japanese applications and thereafter evaluate on the merits in the first instance the translations. In our view, obtaining translations is the responsibility of the examiner. A review by the examiner and applicant of translations of the prior art relied upon in support of the examiner's rejection may supply additional relevant evidence on issues of anticipation and obviousness. Moreover, an evaluation of translations may eliminate the need for an appeal.

For the reasons given, we vacate the rejections based on Nagata and Fujita. Since we are affirming the rejection based on Morris, a remand is not believed necessary. However, in the event of further prosecution in this or a continuing application, should the examiner rely on Nagata and/or Fujita, and should there be a subsequent appeal, translations of the Japanese applications should be obtained and any rejection should be based on those translations, not the abstracts.

3. Rejection based on Morris

In our view the examiner had a legally sufficient sound basis for finding that the claimed composites and the zinc pyrithione surface coated zinc oxide of Morris are prima facie identical or substantially identical within the meaning of Best and Spada, supra. The Morris "core" and "shell" appear to be made from the same "core" and "shell" materials mentioned in the

claims on appeal. Moreover, according to Morris, surface coating the zinc oxide with zinc pyrithione "helps ensure that the *** [zinc pyrithione] contacts the zinc oxide" (col. 6, lines 24-25).

Applicants tell us in their specification, but not their Appeal Brief, and without really explaining in the specification the underlying technological basis therefore, that Fig. 2 shows the "attachment" of copper pyrithione particles to the surface of larger cuprous oxide particles" (specification, page 17, lines 21-22). Assuming, as we noted above, that the same kind of "attachment" would occur with zinc pyrithione and zinc oxide, the examiner had a reasonable basis to believe that the "attachment" mentioned by applicants is the same as the "contacts" mentioned by Morris.

We recognize that applicants believe that there is some reaction between the zinc of the zinc oxide core and the pyrithione used to form the shell. In effect, applicants include in the claims a process limitation in an attempt to define their product. We have no quarrel, in the abstract, with the use of process limitations to define a product. In re Luck, 476 F.2d 650, 653, 177 USPQ 523, 525 (CCPA 1973) (a product claim may include process steps to wholly or partially define the claimed product). However, a product defined in whole or in part by the method by which it is made is still a product. In re Thorpe, 777 F.2d 695, 697, 227 USPQ 964, 966 (Fed. Cir. 1985) (the patentability of a product does not depend on its method production--if the product in a product-by-process claim is the

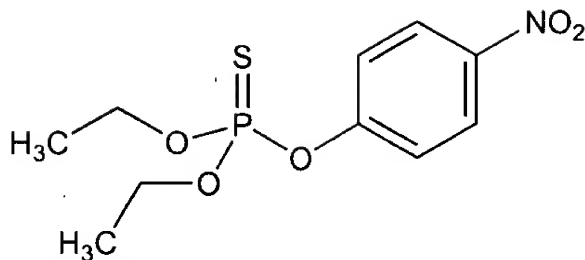
same as or obvious from a product of the prior art, the claim is unpatentable even though the prior product was made by a different process). Since we cannot tell on this record whether the method used by applicants to make their zinc composites results in a different product from that described by Morris with respect to zinc products, we believe the examiner had a legitimate basis for shifting the burden to applicants to show that Morris does not describe the claimed zinc composites.

We have not overlooked other discussion in applicants' specification. For example, according to applicants, at least the copper products "typically" have particle sizes in the range of 1 to 20 microns (specification, page 9, lines 21-22). Morris tells us that "superior antifouling properties" are obtained when the particle size is 0.10 to 0.50 microns. However, Morris makes it clear that a 0.10 to 0.50 micron size is not essential (col. 4, line 65 through col. 5, line 5). Apart from the fact that applicants do not claim a particle size, we have no reason to believe, on this record, that applicants' particle size of 1 to 20 microns results in biocidal properties which are patentably distinct from those described by Morris.

C. Decision

Rejections 1-3 are reversed. Rejections 4-5 are vacated. Rejection 6, based on Morris, is affirmed. Since all claims stand rejected over Morris, the decision of the examiner rejecting claims 1, 38 and 40-41 is affirmed. A remand with

7167. Parathion.



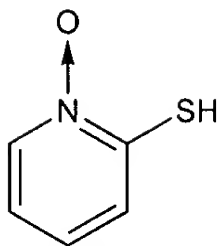
Phosphorothioic acid O,O-diethyl O-(4-nitrophenyl) ester; O,O-diethyl O-p-nitrophenyl phosphorothioate; diethyl-p-nitrophenyl monothiophosphate; DNTP; S.N.P.; E-605; AC-3422; ENT-15108; Alkron; Alleron; Aphamite; Etilon; Folidol (Bayer); Fosfermo (Plant Protection); Niran (Monsanto); Paraphos; Rhodiatox; Thiophos (Am. Cyanamid). $C_{10}H_{14}NO_5PS$; mol wt 291.26. C 41.24%, H 4.84%, N 4.81%, O 27.47%, P 10.63%, S 11.01%. Non-systemic contact and stomach insecticide and acaricide; cholinesterase inhibitor. Original prepn: Thurston, *FIAT Report 949* (1946); Coates, Topley, *BIOS Final Report 1808* (1947). See also Fletcher *et al.*, *J. Am. Chem. Soc.* **70**, 3943 (1948). Conversion to toxic oxygen analogs: See Paraoxon. Toxicity study: T. B. Gaines, *Toxicol. Appl. Pharmacol.* **14**, 515 (1969). Review: Hall, *Advances in Chemistry Series 1*, 150 (1950). Review of industrial syntheses: Chadwick, Watt, "Thiophosphates" in *Phosphorus and its Compounds vol. 2*, J. R. Van Wazer, Ed. (Interscience, New York, 1961) pp 1257-1262. Review of distribution, transport and fate in the environment: M. S. Mulla *et al.*, *Residue Rev.* **81**, 1-159 (1981); of carcinogenic risk: *IARC Monographs 30*, 153-181 (1983).

Pale yellow liquid. bp_{760} 375°; $bp_{0.6}$ 157-162°. mp 6°. n_D^{25} 1.5370. d_4^{25} 1.26. Vapor pressure at 20°: 3.78×10^{-5} mm Hg. Surface tension at 25°: 39.2 dynes/cm. Viscosity at 25°: 15.30 cp. Absorption spectra: Williams, *Ind. Eng. Chem.* **43**, 950 (1951). Freely sol in alcohols, esters, ethers, ketones, aromatic hydrocarbons. Practically insol in water (20 ppm), petr ether, kerosene, and the usual spray oils. Incompatible with substances having a pH higher than 7.5. LD₅₀ in female, male rats (mg/kg): 3.6, 13 orally; 6.8, 21 dermally (Gaines).

Caution: Potential symptoms of overexposure are miosis; rhinorrhea; headache; tight chest, wheezing, laryngeal spasm, salivation and cyanosis; anorexia, nausea, vomiting, abdominal cramps and diarrhea; sweating; muscle fasciculation, weakness and paralysis; giddiness, confusion and ataxia; convulsions, coma; low blood pressure; cardiac irregularities; skin and eye irritation. See *NIOSH Pocket Guide to Chemical Hazards* (DHHS/NIOSH 90-117, 1990) p 172. See also *Clinical Toxicology of Commercial Products*, R. E. Gosselin *et al.*, Eds. (Williams & Wilkins, Baltimore, 4th ed., 1976) Section III, pp 263-271.

USE: Insecticide; acaricide.

8178. **Pyrithione.**



1-Hydroxy-2(1H)-pyridinethione; 2-pyridinethiol 1-oxide; 2-mercaptopyridine 1-oxide; PTO; Omadine (Olin). C_5H_5NOS ; mol wt 127.17. C 47.23%, H 3.96%, N 11.01%, O 12.58%, S 25.22%. Prepn: Shaw *et al.*, *J. Am. Chem. Soc.* **72**, 4362 (1950); Semenov, Dolliver, U.S. pat. **2,745,826** (1956 to Olin Mathieson). Prepn of zinc deriv: **Brit. pat. 761,171** (1956 to Olin Mathieson). Activity of zinc deriv: Karsten *et al.*, and Judge *et al.*, U.S. pats. **3,236,733** and **3,281,366** (both 1966 to Procter and Gamble).

Sodium salt, C_5H_4NNaOS , Fonderma (Biosedra).

Zinc derivative, $C_{10}H_8N_2O_2S_2Zn$, zinc pyrithione, zinc pyridinethione, bis(2-pyridylthio)zinc 1,1'-dioxide, bis-(1-hydroxy-2(1H)-pyridinethionato-O,S)zinc, Desquamant (Hermal). Ingredient in Head & Shoulders Procter & Gamble.

Dimer, $C_{10}H_8N_2O_2S_2$, dipyrithione, 2,2'-dithiobispyridine 1,1'-dioxide, OMDS, Omadine Disulfide (Olin).

USE: Fungicide, bactericide.

THERAP CAT: Antibacterial; antifungal. Zinc deriv also as antiseborrheic.

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